

consider it an illustration of the theory of "saltation," proposed to cover cases of a similar sort in zoölogy.

Not being a specialist in botany, I submit the case, and have reluctantly suggested the above reflections in the most tentative way. If they may awake an interest on the part of those more capable of opinions, this notice will not have been in vain.—C. W. HARGITT, *Miami University Oxford, Ohio.*

Poisonous plants and the symptoms they produce.—When horses, cattle or sheep here die from unknown causes, which have produced more or less marked cerebral disturbance within a few days or hours before dissolution, accompanied by one or more minor symptoms, they are said to have been "locoed," that is, poisoned by some usually mysterious unknown plant. The general symptoms are here given in the order they usually appear:

The animal wanders alone, has unnaturally bright eyes and slight frothing at the mouth, or even extreme salivation occurs and the creature goes about with a stream of clear saliva trickling from its chin to the ground, or else the lips are dry, a little swollen and the whole mouth very hot. The appetite becomes noticeably impaired; large quantities of offensive gas are belched forth, frequently accompanied by a greenish froth mixed with finely chewed food. The brain now becomes plainly affected—control of limbs partially or wholly lost—sometimes muscles of one side of the neck are contracted in a pitiable manner. In a few days, hours or minutes, as the case may be, after proper limb-control is lost, the staggering animal refuses to eat or drink at all, becomes stupid, reels and falls, seldom rising again. Stupor increases, eyes become dull and staring, perfect torpor comes on. Limbs and neck may become quite rigid and extended, or else in natural position and easily moved by the hand. Abdomen usually swells to enormous size. Victim may lie in this condition a week or death may ensue in a few hours; there is rarely any struggle at that time.

Post mortem examination reveals several interesting features. The intestines with their surrounding fat are already green, although the creature may have only just died. The arteries and smaller vessels in the limbs are gorged with thick, black blood. The lining of the first stomach is worn and ulcerated in patches and in some cases seems to have commenced decomposition; is very soft and can be peeled off the muscular layer with thumb and forefinger in big pieces. Lungs and heart almost bloodless, but the brain, particularly the cerebellum, is purplish, soft and pulpy.

The symptoms, etc., vary considerably, and it seems unlikely that one poison causes them all.

Four common plants are here said to "loco" stock, viz.: *Oxytropis Lamberti*, *Leucocrinum montanum*, *Fritillaria pudica* and *Zygadenus elegans*. The first is now known to produce no evil effects except when

eaten in large quantities for days together. Proper experiments have not been conducted with the others yet. *Leucocrinum montanum* is said to be very fatal to sheep after the fruit has developed. It grows close in the grass, and its narrow grass-like leaves are not easily avoided by stock. This plant occurs in various parts of the territory, is very common in Lewis and Clarke county, near Helena, and in the Sand Coulee region of Cascade county. *Fritillaria pudica* is almost the first plant to flower in spring. Before the grass is green horses and sheep often nip off the leaves. The scaly bulb is somewhat acrid to the taste. *Zygadenus elegans* does not flower so early but sends up its long "grassy" leaves at the same time. Sheep eat much of this plant, even nipping off the panicles when they appear. The whole plant is acrid, but the deep-set bulb is strongly so.

So many sheep, cattle and horses die yearly in all the western territories, presumably through eating poisonous plants, that western botanists should do all in their power to investigate the matter. Not long ago it was reported that a new disease had broken out among horses ranging on the northern foothills of the Great Belt Mountains. The disease first affects digestion only, and victims rapidly lose flesh and get very weak. Soon the renal regions are involved, and although sufferers seldom die they as seldom appear to fully recover; the back remains so weak that no load can be borne or drawn. One man has thirty fine-looking horses affected in this way. As usual, the cause is attributed to "some weed they get."—F. W. ANDERSON, *Great Falls, Montana*.

New Mosses.—Descriptions and drawings of the following new species and of many new varieties, by F. Renauld and J. Cardot, will be issued shortly in the BOTANICAL GAZETTE:

Dicranella Langloisii.—Louisiana (A. B. Langlois).

Dicranum consobrinum.—Minnesota.

Didymodon Hendersoni.—Oregon (L. F. Henderson).

Grimmia tenerrima.—" "

Coscinodon Renauldi.—Kansas (Henry).

Ulotia glabra.—Oregon (L. F. Henderson).

Hendersoni.—" "

Orthotrichum productipes.—Oregon (L. F. Henderson).

Bryum crassum.—" "

Hendersoni.—" "

extenuatum.—" "

Fontinalis Kindbergii.—Vancouver (John Macoun). Oregon (L. F. Henderson).

subbiformis.—Oregon (L. F. Henderson).

Brachythecium Idahoense.—Idaho (Leiberg).

Microthamnium aberrans.—" " A very interesting moss, of a tropical genus, with the facies of *M. acrorrhizum* (Hsch.) from Brazil, but distinct from all the known species of the genus in the broad, lax cells of the areolation.